Your Ultimate Source for OEM Repair Manuals

FactoryManuals.net is a great resource for anyone who wants to save money on repairs by doing their own work. The manuals provide detailed instructions and diagrams that make it easy to understand how to fix a vehicle.

2001 MAZDA B Series / Bravo Freestyle Cab OEM Service and Repair Workshop Manual

Go to manual page

STEP	INSPECTION	RESULTS	ACTION
11	VERIFY DTC TROUBLESHOOTING COMPLETED • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Perform the KOEO or KOER self test. (See KOEO/KOER SELF TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
12	VERIFY AFTER REPAIR PROCEDURE • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
3	**VERIFY DTC FOR MODULE COMMUNICATION** • Switch the ignition off, then ON (engine off). • Perform the Pending Trouble Code Access Procedure and DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any other PENDING CODEs and/or DTCs present?	Yes	Go to the applicable PENDING CODE or DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	Go to the next step.
4	**INSPECT COOLANT CONTROL VALVE/COOLANT CONTROL VALVE POSITION SENSOR CONNECTOR CONDITION** • Disconnect the coolant control valve/coolant control valve position sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 11.
		No	Go to the next step.
5	**INSPECT PCM CONNECTOR CONDITION** • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 11.
		No	Go to the next step.
6	**INSPECT COOLANT CONTROL VALVE/COOLANT CONTROL VALVE POSITION SENSOR CIRCUIT FOR OPEN CIRCUIT** • Verify that the coolant control valve/coolant control valve position sensor and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side): — Coolant control valve/coolant control valve position sensor terminal C–PCM terminal 1D — Coolant control valve/coolant control valve position sensor terminal D–PCM terminal 1I — Coolant control valve/coolant control valve position sensor terminal E–PCM terminal 1BG • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Coolant control valve/coolant control valve position sensor terminal C–PCM terminal 1D • Coolant control valve/coolant control valve position sensor terminal D–PCM terminal 1I • Coolant control valve/coolant control valve position sensor terminal E–PCM terminal 1BG **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 11.
7	**INSPECT COOLANT CONTROL VALVE/COOLANT CONTROL VALVE POSITION SENSOR CIRCUIT FOR SHORT TO GROUND** • Verify that the coolant control valve/coolant control valve position sensor and PCM connectors are disconnected. • Inspect for continuity between the following terminals (wiring harness-side) and body ground: — Coolant control valve/coolant control valve position sensor terminal C–PCM terminal 1D — Coolant control valve/coolant control valve position sensor terminal D–PCM terminal 1I — Coolant control valve/coolant control valve position sensor terminal E–PCM terminal 1BG • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Coolant control valve/coolant control valve position sensor terminal C–PCM terminal 1D • Coolant control valve/coolant control valve position sensor terminal D–PCM terminal 1I • Coolant control valve/coolant control valve position sensor terminal E–PCM terminal 1BG **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground. Go to Step 11.
		No	Go to the next step.

DTC P0088:00 [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))]

SM2896862

id0102t314610

Note

• To determine the malfunctioning part, proceed with the diagnostics from "Function Inspection Using M-MDS".

Details On DTCs

DESCRIPTION	**Fuel pressure sensor circuit range/performance problem**	
DETECTION CONDITION	Determination conditions	• The actual fuel pressure becomes higher than the target fuel pressure by 1.2 MPa {12 kgf/cm^2, 174 psi} while the fuel pressure feedback amount is maintained high.
	Preconditions	• Engine speed: 500 rpm or more *1 • The following DTCs are not detected: — Fuel pressure sensor: P0089:00, P0192:00, P0193:00 — High pressure fuel pump: P0091:00, P0092:00 *1: Standard can be verified by displaying PIDs using M-MDS
	Malfunction determination period	• 5 s period
	Drive cycle	• 1
	Self test type	• CMDTC self test
	Sensor used	• Fuel pressure sensor
FAIL-SAFE FUNCTION	• Limits intake air amount • Stops high pressure fuel pump control	
VEHICLE STATUS WHEN DTCs ARE OUTPUT	• Illuminates check engine light.	
POSSIBLE CAUSE	• High pressure fuel pump connector or terminals malfunction • Fuel pressure sensor connector or terminals malfunction • PCM connector or terminals malfunction • Fuel pressure sensor malfunction • Fuel injector malfunction • High pressure fuel pump malfunction — Relief valve (built-into high pressure fuel pump) malfunction • PCM malfunction	

System Wiring Diagram

• Not applicable

Function Explanation (DTC Detection Outline)

• The PCM calculates the target fuel pressure appropriate to the engine conditions relative to the actual fuel pressure based on the fuel pressure sensor signal and provides feedback to the high pressure fuel pump control. If the difference between the actual fuel pressure and the target fuel pressure relative to the feedback amount is large, the PCM determines a malfunction in the fuel pressure sensor and stores a DTC.

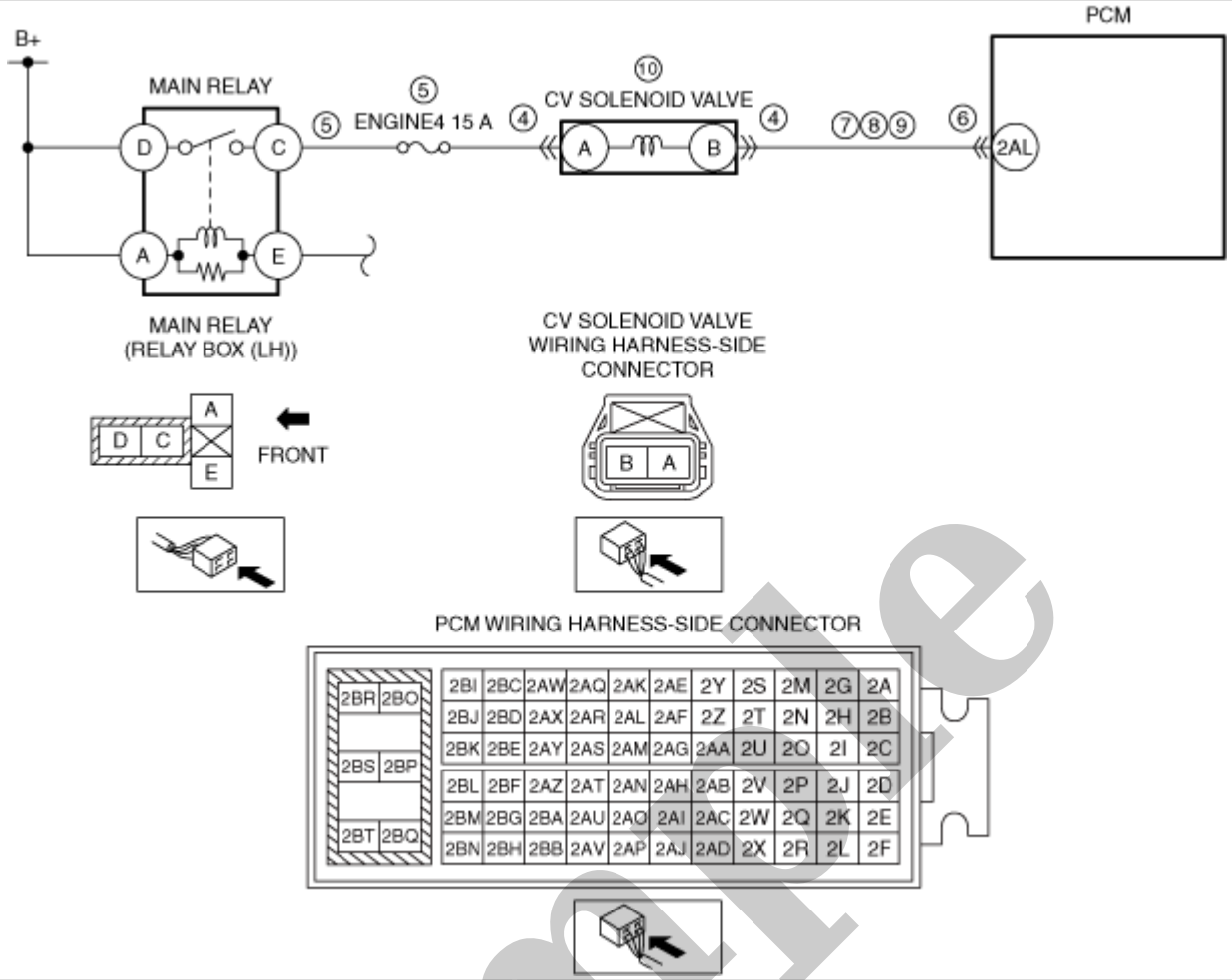
STEP	INSPECTION	RESULTS	ACTION
2	PURPOSE: VERIFICATION OF VEHICLE REPAIR COMPLETION • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Implement the repeatability verification procedure. (See Repeatability Verification Procedure.) • Perform the DTC Reading Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Is the same Pending DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
3	PURPOSE: VERIFY IF THERE IS ANY OTHER MALFUNCTION • Is any other DTC or pending code stored?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
12	**INSPECT INTAKE CMP SENSOR FOR FOREIGN MATTER** • Visually inspect the intake CMP sensor for foreign matter. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) • Is there any foreign matter on the intake CMP sensor?	Yes	Remove the foreign matter from the intake CMP sensor, then go to Step 16.
		No	Go to the next step.
13	**INSPECT INTAKE CMP SENSOR PULSE WHEEL** • Visually inspect the intake CMP sensor pulse wheel. • Is there any damage or scratching on the intake CMP sensor pulse wheel?	Yes	Replace the intake CMP sensor pulse wheel, then go to Step 16.
		No	Go to the next step.
14	**INSPECT INTAKE CMP SENSOR** • Reconnect all disconnected connectors. • Inspect the intake CMP sensor. (See CAMSHAFT POSITION (CMP) SENSOR INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) • Is there any malfunction?	Yes	Replace the intake CMP sensor, then go to Step 16. (See CAMSHAFT POSITION (CMP) SENSOR REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].)
		No	Go to the next step.
15	**INSPECT PCM CONNECTOR CONDITION** • Switch the ignition off. • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to the next step.
		No	Go to the next step.
16	**VERIFY DTC TROUBLESHOOTING COMPLETED** • Always reconnect all disconnected connectors. • Clear the DTC from the PCM memory using the M-MDS. (See CLEARING DTC [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Start the engine and warm it up completely. • Perform the Pending Trouble Code Access Procedure. (See ON-BOARD DIAGNOSTIC TEST [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Is the PENDING CODE for this DTC present?	Yes	Repeat the inspection from Step 1. • If the malfunction recurs, replace the PCM. (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) Go to the next step.
		No	Go to the next step.
17	**VERIFY AFTER REPAIR PROCEDURE** • Perform the "AFTER REPAIR PROCEDURE". (See AFTER REPAIR PROCEDURE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].) • Are any DTCs present?	Yes	Go to the applicable DTC inspection. (See DTC TABLE [PCM (SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION))].)
		No	DTC troubleshooting completed.

STEP	INSPECTION	RESULTS	ACTION
5	INSPECT AMBIENT TEMPERATURE SENSOR SIGNAL CIRCUIT FOR SHORT TO GROUND • Verify that the ambient temperature sensor connector is disconnected. • Switch the ignition off. • Inspect for continuity between ambient temperature sensor terminal A (wiring harness-side) and body ground. • Is there continuity?	Yes	Disconnect the PCM connector and inspect the wiring harness for short to ground. • If the short to ground circuit could be detected in the wiring harness: — Refer to the wiring diagram and verify whether or not there is a common connector between ambient temperature sensor terminal A and PCM terminal 2R. If there is a common connector: • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has a short to ground. • If the short to ground circuit could not be detected in the wiring harness: — Replace the PCM (short to ground in the PCM internal circuit). (See PCM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) Go to Step 9.
		No	Go to the next step.
6	INSPECT PCM CONNECTOR CONDITION • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 9.
		No	Go to the next step.
7	INSPECT AMBIENT TEMPERATURE SENSOR SIGNAL CIRCUIT AND GROUND CIRCUIT FOR SHORT TO EACH OTHER • Verify that the ambient temperature sensor and PCM connectors are disconnected. • Inspect for continuity between ambient temperature sensor terminals A and B (wiring harness-side). • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Ambient temperature sensor terminal A—PCM terminal 2R • Ambient temperature sensor terminal B—PCM terminal 2AI If there is a common connector: • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to each other. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has a short to each other. Go to Step 9.
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the snapshot data on the repair order.	–	Go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step.
		No	Go to the next step.
3	INSPECT AMBIENT TEMPERATURE SENSOR CONNECTOR CONDITION • Switch the ignition off. • Disconnect the ambient temperature sensor connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 8.
		No	Go to the next step.
4	INSPECT PCM CONNECTOR CONDITION • Disconnect the PCM connector. • Inspect for poor connection (such as damaged/pulled-out pins, corrosion). • Is there any malfunction?	Yes	Repair or replace the connector and/or terminals, then go to Step 8.
		No	Go to the next step.
5	INSPECT AMBIENT TEMPERATURE SENSOR SIGNAL CIRCUIT FOR SHORT TO POWER SUPPLY • Verify that the ambient temperature sensor and PCM connectors are disconnected. • Switch the ignition ON (engine off). Note • Another DTC may be stored by the PCM detecting an open circuit. • Measure the voltage at the ambient temperature sensor terminal A (wiring harness-side). • Is the voltage 0 V?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between ambient temperature sensor terminal A and PCM terminal 2R. If there is a common connector: • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has a short to power supply. Go to Step 8.
6	INSPECT AMBIENT TEMPERATURE SENSOR CIRCUIT FOR OPEN CIRCUIT • Verify that the ambient temperature sensor and PCM connectors are disconnected. • Switch the ignition off. • Inspect for continuity between the following terminals (wiring harness-side): — Ambient temperature sensor terminal A–PCM terminal 2R — Ambient temperature sensor terminal B–PCM terminal 2AI • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between the following terminals: • Ambient temperature sensor terminal A–PCM terminal 2R • Ambient temperature sensor terminal B–PCM terminal 2AI If there is a common connector: • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. If there is no common connector: • Repair or replace the wiring harness which has an open circuit. Go to Step 8.

DTC P0446:00	CV solenoid valve control circuit problem



Diagnostic Procedure

STEP	INSPECTION	RESULTS	ACTION
1	RECORD VEHICLE STATUS AT TIME OF DTC DETECTION TO UTILIZE WITH REPEATABILITY VERIFICATION Note • Recording can be facilitated using the screen capture function of the PC. • Record the FREEZE FRAME DATA/snapshot data on the repair order.	–	Go to the next step.
2	VERIFY RELATED REPAIR INFORMATION AVAILABILITY • Verify related Service Bulletins and/or on-line repair information availability. • Is any related repair information available?	Yes	Perform repair or diagnosis according to the available repair information. • If the vehicle is not repaired, go to the next step
		No	Go to the next step.

STEP	INSPECTION	RESULTS	ACTION
7	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO GROUND** • Verify that the CV solenoid valve and PCM connectors are disconnected. • Inspect for continuity between CV solenoid valve terminal B (wiring harness-side) and body ground. • Is there continuity?	Yes	Refer to the wiring diagram and verify whether or not there is a common connector between CV solenoid valve terminal B and PCM terminal 2AL. **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to ground. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to ground. Go to Step 11.
		No	Go to the next step.
8	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR SHORT TO POWER SUPPLY** • Verify that the CV solenoid valve and PCM connectors are disconnected. • Switch the ignition ON (engine off). **Note** **• Another DTC may be stored by the PCM detecting an open circuit.** • Measure the voltage at the CV solenoid valve terminal B (wiring harness-side). • Is the voltage 0 V?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between CV solenoid valve terminal B and PCM terminal 2AL. **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for a short to power supply. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has a short to power supply. Go to Step 11.
9	**INSPECT CV SOLENOID VALVE CONTROL CIRCUIT FOR OPEN CIRCUIT** • Verify that the CV solenoid valve and PCM connectors are disconnected. • Switch the ignition off. • Inspect for continuity between CV solenoid valve terminal B (wiring harness-side) and PCM terminal 2AL (wiring harness-side). • Is there continuity?	Yes	Go to the next step.
		No	Refer to the wiring diagram and verify whether or not there is a common connector between CV solenoid valve terminal B and PCM terminal 2AL. **If there is a common connector:** • Determine the malfunctioning part by inspecting the common connector and the terminal for corrosion, damage, or pin disconnection, and the common wiring harness for an open circuit. • Repair or replace the malfunctioning part. **If there is no common connector:** • Repair or replace the wiring harness which has an open circuit. Go to Step 11.
10	**INSPECT CV SOLENOID VALVE** • Inspect the CV solenoid valve. (See CANISTER VENT (CV) SOLENOID VALVE INSPECTION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) • Is there any malfunction?	Yes	Replace the CV solenoid valve, then go to the next step. (See CANISTER VENT (CV) SOLENOID VALVE REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].)
		No	Go to the next step.